

60LT1094-10
(GP2-0267-D3)

AMENDMENTS TO THE CLAIMS

1. (original) A curable composition comprising:
 - (a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;
 - (b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;
 - (c) a thermoplastic resin; and
 - (d) a bismaleimide.
2. (original) The curable composition of claim 1, wherein said flame retardant additive has a bromine content greater than 20%.
3. (original) The curable composition of claim 1, wherein said flame retardant additive is 1,3,5-tris(2,4,6-tribromophenoxy)triazine.
4. (original) The curable composition of claim 1, wherein said flame retardant additive is 2,2'-[(1-methylcthylidene)bis[(2,6-dibromo-4,1-phenylene)oxy]]bis[4,6-bis[(2,4,6-tribromophenyl)oxy]-1,3,5-triazine].
5. (original) The curable composition of claim 1, wherein said flame retardant additive is soluble in toluene at a concentration of greater than 15 g/100ml of toluene at a temperature of 50° C.

60LT1094-10
(GP2-0267-D3)

6. (currently amended) The A curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms; and wherein said epoxy resin is a glycidyl ether resin or a mixture of glycidyl ether resins containing, on average, greater than 2 epoxy groups per molecule;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; and

(d) a bismaleimide.

7. (currently amended) The A curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms; and wherein said epoxy resin is a mixture of [(1)]

(a1) an epoxy resin containing on average less than or equal to 2 glycidyl groups per molecule; and

(a2) an epoxy resin containing greater than 2 glycidyl groups per molecule;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; and

(d) a bismaleimide.

60LTI094-10
(GP2-0267-D3)

8. (currently amended) The A curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin has a T_g greater than 120°C; and

(d) a bismaleimide.

9. (currently amended) The A curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin has a dissipation factor of less than 0.010 measured at 1 MHz at room temperature; and

(d) a bismaleimide.

601.T1094-10
(GP2-0267-D3)

10. (currently amended) The A curable composition of ~~claim 1~~, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin has been directly isolated from solution after polymerization; and

(d) a bismaleimide.

11. (currently amended) The A curable composition of ~~claim 1~~, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is a poly(phenylene ether); and

(d) a bismaleimide.

60LT1094-10
(GP2-0267-D3)

12. (currently amended) The A curable composition of claim 11, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is a poly(phenylene ether); and wherein said poly(phenylene ether) has a weight average molecular weight ranging from about 3,000 to 35,000 g/mol; and

(d) a bismaleimide.

13. (currently amended) The A curable composition of claim 11, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is a poly(phenylene ether); and wherein said poly(phenylene ether) has a weight number average molecular weight ranging from about 3,000 1,000 to 35,000 10,000 g/mol; and

(d) a bismaleimide.

GOLT1094-10
(GP2-0267-1D3)

14. (currently amended) The A curable composition of claim 11, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is a poly(phenylene ether); and wherein said poly(phenylene ether) has been melt processed at a temperature ranging from about 200° to 350°C; and

(d) a bismaleimide.

15. (currently amended) The A curable composition of claim 11, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is a poly(phenylene ether); and wherein said poly(phenylene ether) is hydroxy functional; and

(d) a bismaleimide.

60LT1094-10
(GP2-0267-123)

16. (currently amended) The A curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is one or more of a poly(phenylene ether) or a poly(styrene-co-maleic anhydride); and

(d) a bismaleimide.

17. (currently amended) The A curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is a reaction product of a poly(phenylene ether) and a peroxide; and

(d) a bismaleimide.

601,T1094-10
(GP2-0267-D3)

18. (currently amended) The Δ curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is a reaction product of a poly(phenylene ether), a peroxide, and a bisphenol; and

(d) a bismaleimide.

19. (currently amended) The Δ curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; wherein said thermoplastic resin is a polyimide; and

(d) a bismaleimide.

60LT1094-10
(GP2-0267-D3)

20. (currently amended) The A curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin;

(d) a bismaleimide; and

wherein the curable composition further comprises one or more of an organic reinforcement, an inorganic reinforcement, or a filler.

21. (original) The curable composition of claim 1, wherein the curable composition is essentially free of homopolymers of styrene.

22. (currently amended) The A curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein the epoxy resin is essentially free of bromine atoms; and wherein the epoxy resin is a multifunctional glycidyl ether;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein the flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; and

(d) a bismaleimide.

60LT1094-10
(GP2-0267-D3)

23. (currently amended) ~~The A curable composition of claim 1, comprising:~~

(a) an epoxy resin and curing agent therefor, wherein the epoxy resin is essentially free of bromine atoms; wherein the epoxy resin is a multifunctional glycidyl ether; and wherein said the multifunctional glycidyl ether is selected from the group consisting of epoxidized phenol-formaldehyde novolacs, epoxidized cresol-formaldehyde novolacs, epoxidized alkylphenol-formaldehyde novolacs, epoxidized 1,1,1-tris(4-hydroxyphenyl)ethane, epoxidized 1,1,2,2-tetra(4-hydroxyphenyl) ethane, epoxidized phenol-dicyclopentadiene novolacs, and epoxidized phenol-benzaldehyde novolacs;

(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein the flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; and

(d) a bismaleimide.

601.T1094-10
(GP2-0267-D3)

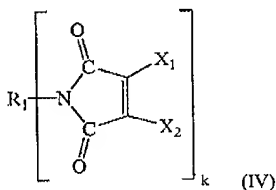
24. (currently amended) The Δ curable composition of claim 1, comprising:

(a) an epoxy resin and curing agent therefor, wherein the epoxy resin is essentially free of bromine atoms;

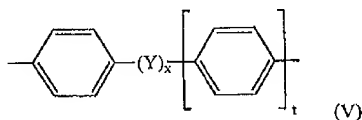
(b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein the flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;

(c) a thermoplastic resin; and

(d) a bismaleimide; wherein said bismaleimide has the formula



wherein k is an integer of at least 2; X₁ and X₂ are identical or different and each represents a hydrogen atom, a halogen atom or a lower alkyl group; and R₁ represents an aromatic or aliphatic organic group having a valence of k, which is selected from the group consisting of a linear or cyclic aliphatic hydrocarbon group having 4 to 16 carbon atoms, a monocyclic or fused ring aromatic hydrocarbon group, a triazine ring, a moiety resulting from the removal of the amino group from a condensation product of aniline and formaldehyde and a polybenzene group represented by the following formula:



60LT1094-10
(GP2-0267-D3)

wherein x represents 0 or 1 and when x represents 1, Y represents a linear, branched or cyclic aliphatic hydrocarbon group having 1 to 14 carbon atoms, a phenylene group, a xylylene group, an oxygen atom, a sulfur atom, a carbonyl group, a sulfonyl group, a sulfinyl group, an alkyleneoxyalkylene group, a phosphonyl group, a phosphinyl group, or an imino group; and t is an integer of 1 or 2, or the homoprepolymer thereof obtained by reacting at least one of said polyfunctional maleimides under heat and stopping the reaction before the reaction mixture is gelled.

25. (original) A curable composition comprising:

(a) an epoxy resin and curing agent therefor, wherein said epoxy resin is a glycidyl ether resin or mixture of glycidyl ether resins containing, on average, greater than 2 epoxy groups per molecule;

(b) 1,3,5-tris(2,4,6-tribromophenoxy)triazine and/or 2,2'-[(1-methylethylidene)bis[(2,6-dibromo-4,1-phenylene)oxy]]bis[4,6-bis[(2,4,6-tribromophenyl)oxy]-1,3,5-triazine];

(c) a poly(phenylene ether) resin; and

(d) a bismaleimide.

26. (original) A curable composition comprising:

(a) an epoxidized cresol-formaldehyde novolac resin;

(b) 1,3,5-tris(2,4,6-tribromophenoxy)triazine; and

(c) a poly(phenylene ether) resin having a number average molecular weight ranging from about 1,000 to 15,000 g/mol; and

(d) a bismaleimide.

601.71094-10
(GP2-0267-D3)

27. (original) A cured composition comprising a cured residue of a curable composition comprising:

- (a) an epoxy resin and curing agent therefor, wherein said epoxy resin is essentially free of bromine atoms;
- (b) a flame retardant additive essentially free of phenolic groups and of epoxy groups, wherein said flame retardant is a condensation product of (i) a brominated phenol or a mixture of brominated phenols with (ii) a cyanuric halide;
- (c) a thermoplastic resin; and
- (d) a bismaleimide.